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EFFECTS OF THREE DIFFERENT STIMULI ON THE CREATIVITY OF CHILDREN'S COMPOSITIONS.

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THIS STUDY BEGAN AN ATTEMPT TO DETERMINE THE BASIC CHARACTERISTICS OF EFFECTIVE MOTIVATING STIMULI FOR USE IN ELEMENTARY SCHOOL WRITING PROGRAMS. IN PARTICULAR, IT DEALT WITH THE EFFECTS OF ORGANIZED AND UNORGANIZED STIMULI ON THE CREATIVE WRITING ABILITY OF THIRD- AND SIXTH-GRADE STUDENTS. THE CHILDREN WERE DIVIDED INTO SIX GROUPS. ONE GROUP OF EACH GRADE WAS GIVEN A CHOICE IN STIMULI SELECTION WHILE THE OTHERS WERE NOT. RESULTS SHOWED THAT, WHILE GIRLS MAINTAINED A BETTER OVERALL PERFORMANCE, DIFFERENT MOTIVATIONAL PATTERNS HAD DEVELOPED IN THE SIXTH GRADE STUDENTS. THE GIRLS DID BETTER WHEN PRESENTED WITH ORGANIZED MATERIAL AND THE BOYS DID BETTER WITH UNORGANIZED MATERIAL. CONCLUSIONS SUGGESTED THAT POSSIBLY AN INTEGRATED SYSTEM USING BOTH ORGANIZED AND UNORGANIZED STIMULI WOULD BE MOST EFFECTIVE IN PRODUCING CREATIVITY IN AN ELEMENTARY SCHOOL PROGRAM. (PM)

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Cooperative Research Project No. S-127

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Problem

The purpose of this study was to begin to examine systematically the effects of various types of motivating stimuli on the quality of elementary school children's creative writing. To our knowledge no study had yet been made which attempted to determine the basic characteristics of effective motivating stimuli for use in elementary school creative writing programs. Teachers have invented an infinite number of gimmicks which they hope will stimulate children to write creatively. Yet, teachers have no reliable way of selecting from among the various motivating devices. They have no way of answering with confidence such questions as, "Will this music stimulate creative writing more effectively than some other music? Will this picture (film, topic, etc.) be more effective than that one?" Therefore, a conceptual framework which will allow teachers to choose stimuli in a qualitative manner needs to be developed. This framework should be based on research into the effects of various types of stimuli on the quality of children's creative writing. As an extension of such research, the relationship between stimulus preferences and various personality and cultural factors needs to be examined.

Background and Rationale

The Education Index lists an abundant number of articles arguing for this device or that device as a promising stimulus for motivating creative writing. Very little research has been done, however, to test whether or not a particular device actually resulted in any qualitative difference in the children's writing. Nor have there been many studies in which one stimulus was compared to another stimulus.

Torrance (12) has found that prestige may be an effective motivation. Children seem to be more productive of ideas, he found, when their ideas are considered valuable by their teachers and their peers. Witty and Martin (14) found that a film motivated children to write stories of high quality. Getzels' and Jackson's differentiation (6) between "high IQ" groups and "high-creativity" groups depended partially upon stories induced by pictorial stimuli.

Carlson's study (3) indicates that it might be possible to classify stimuli according to their relative effectiveness in encouraging creative writing of high quality. Carlson found that an experimental group wrote more original stories in four of eight situations. The situations involved writing compositions based on gross stimuli such as toys, books, pictures,

and records. Berry (2) found no difference between the quality of children's creative writing induced by a film and that which was induced without the benefit of the film. Both Wyatt (15) and Edmund (5) discovered that children wrote stories of higher quality when the stories were based on imaginary experiences rather than actual experiences. Sofell (9) found that a child's selection of his own topic was more motivating than a topic suggested to him by the teacher.

None of the research cited above has been concerned with the characteristics which distinguish one stimulus from another. Yet research indicates that creative people may be attracted to particular types of stimuli. MacKinnon's study (8) of creative writers, architects, and engineers suggests that creative people are challenged by complex, unfinished, and unordered stimuli. Barron's study (1) of Air Force Captains demonstrated that creative people tend to like and construct things which are not simply ordered. Stein and Meer (10) used Rorschach ink blots to measure creative thinking abilities and found that the Rorschach measurements correlated significantly with supervisory judgments of creativity.

The studies by Stein and Meer, MacKinnon, and Barron, indicate that an appropriate device for inducing creative writing would be an unorganized stimuli. Drews (4), however, found that highly creative adolescents are fond of making original interpretations of common phenomena. Furthermore, although the Rorschach ink blot test is often used in an attempt to measure creativity, the Thematic Appreception Test is also used for this purpose. While the Rorschach test would require the creative individual to synthesize an unorganized stimulus in an uncommon way, the TAT would require him to make an original interpretation of an organized, common stimulus. Moreover, the investigations of creative thinking by Guilford and his associates (7) have led them to define creative thinking with such terms as spontaneous flexibility, adaptive flexibility, and redefinition, implying that creativity involves an ability to restructure common stimuli in order to produce something new.

Research indicates, then, that although creativity may be stimulated by an unorganized stimulus, it might also be stimulated by an organized stimulus. Research does not indicate, however, the relative effectiveness of the two types of stimuli in promoting either creative thinking in general or creative writing in particular.

Objectives

Answers to the following questions were sought:

1. Which type of stimulus--organized, unorganized, or choice between the two--will result in the greatest degree of creativity in children's written stories? Do boys and girls differ in this respect?
2. Among those stories written by children in the choice group; which will be judged more creative--those written about the organized stimulus or those written about the unorganized stimulus?
3. Which stimulus--organized or unorganized--will the "choice group" choose most frequently? Do boys and girls differ in this respect?
4. In the choice group will there be any difference among those receiving high, average, and low creative writing scores with respect to their preference for the organized or unorganized stimulus?

Procedures

(a) General Design: One independent variable for question 1 consisted of three types of stimuli. The organized stimulus was a simple sketch of a tree, a hill, a person, and a flying bird. The unorganized stimulus was an abstract sketch which employed the same lines as the organized stimulus, arranged in a meaningless order. The third stimulus was a choice between the organized stimulus and the unorganized stimulus. The second independent variable for question 1 was the sex of the children. The dependent variable for question 1 was the "creativity" score given to each composition.

The independent variable for question 2 consisted of two sets of compositions. One set included those compositions written by children in the "choice group" about the organized stimulus. The other set included those compositions written by children in the "choice group" about the unorganized stimulus. The dependent variable for question 2 was the "creativity" score given to each composition.

One independent variable for question 3 consisted of two stimuli--organized and unorganized. The other independent variable for question 3 was sex of the children. The dependent variable was the frequency with which the stimuli were chosen by the children in the "choice group."

The independent variable for question 4 consisted of three sets of children in the "choice group" -- the high scoring set, the average scoring set, and the low scoring set. The dependent variable was the frequency with which the stimuli were chosen.

(b) Populations: The two populations of this study consisted of 309 sixth grade children and 294 third grade children in Manitowoc, Wisconsin. The third graders and sixth graders were randomly assigned to one of three treatment groups. Each group, consisting of one-third of the population, received a different stimulus--organized, unorganized, or a choice between the organized and unorganized.

(c) Data and Instrumentation: All subjects in the study received a mimeographed sheet, at the top of which was the organized stimulus or the unorganized stimulus or both of these stimuli. Those receiving either the organized or unorganized sketch were asked to write an imaginative story about the sketch. Those who received both the organized and unorganized stimuli were asked to choose between the two stimuli and then to write a story about their choice. All subjects were given 40 minutes in which to write their stories. (The choice group was given an extra five minutes in which to choose between the two stimuli.) The stimuli were administered by the regular classroom teachers, who participated in a short training session and received a standardized administration guide. The teachers informed the children that they were involved in an important research project. The stories were collected and typed, with spelling and gross grammatical errors corrected.

All stories written about the organized stimulus were judged independently by six judges. These judges were composed of three graduate students in English and three graduate students in Education. The sequence of stories varied among judges. All those stories written about the unorganized stimulus were judged independently by another set of six judges, consisting, again, of three graduates in English and three graduates in Education. Of the 12 judges, five were men and seven were women. Each story was classified by each judge as either "creative" or "noncreative." Gross judgments were used rather than ratings based on uniform criteria (such as those developed by Yamamoto and Torrance because of the major differences in the stimuli, which would lead to drastically different types of stories. Scaled ratings were not used, as investigators of creativity (13)

have found that dichotomous classifications are as effective as weighted scores; the high correlation between the unweighted and weighted scores makes the latter measurement uneconomical. A separate set of judges were used for each stimulus since the resultant stories were extremely different. Following the first wave of judgments, the judges who classified the stories about the unorganized stimulus classified the stories about the organized stimulus, and vice versa. Thus, each story was judged independently by twelve people. From these judgments a score ranging from zero to twelve was derived for each story. A score of "zero" indicated that none of the 12 judges considered the story to be "creative." A score of "five" indicated that five of the 12 judges considered the story to be "creative" and seven of the judges considered it "noncreative." Third-grade papers and sixth-grade papers were judged independently; the judges were informed about the grade level of the subjects, but not about the stimuli presented to them.

(d) Analysis:

1. Two-way analysis of variance was used to answer question 1 (under "Objectives").
2. Student's "t" was used to answer question 2.
3. Chi-square was used to answer question 3.
4. Chi-square was used to answer question 4. (Those whose creativity score was 4.5 or better were considered "high"; those between 1.5 and 4.4 were considered "average"; those below 1.5 were considered "low").

Findings

Table 1 shows the mean scores on the third graders' creative compositions. None of the differences among or between means were significant at the five per cent level of confidence.

Table 2 shows the mean scores on the sixth graders' creative compositions. The difference among the three stimuli is not significant at the five per cent level of confidence. However, the difference between boys and girls is significant at the .05 level, and the interaction between sex and stimuli is significant at the .01 level. In general the girls performed better than the boys on this task--a finding which is consistent with the general superiority which American girls develop in verbal fluency. On the other hand, the girls' superior performance in this situation was due largely to the very poor showing which the boys made in the group which had the organized

Table 1

Mean Scores on Creative Compositions by 270 Third Grade Children*

	Stimuli			
	Organized	Unorganized	Choice	Total
Boys	2.80	3.18	2.96	2.98
Girls	3.47	3.31	2.84	3.21
Total	3.13	3.24	2.90	3.09

*Cells were equalized by random deletion of subjects.

Table 2

Mean Scores on Creative Compositions by 258 Sixth Grade Children*

	Stimuli			
	Organized	Unorganized	Choice	Total
Boys	2.07	4.09	3.12	3.09
Girls	4.09	3.16	4.30	3.85
Total	3.08	3.63	3.71	3.47

*Cells were equalized by random deletion of subjects.

Table 3

Mean Scores on Creative Compositions of Children in Choice Group

	Chosen Stimuli			
	Organized		Unorganized	
	Mean	N	Mean	N
Grade 3	2.96	85	3.46	13
Grade 6	3.37	79	4.83	24

stimulus. The girls performed considerably better than the boys in the "organized" and "choice" situations. Yet the boys performed much better than the girls in the "unorganized" situation. Evidently the boys blossomed and the girls wilted when asked to respond to the unorganized stimulus. In the choice situation both girls and boys performed well, relative to their overall means, but again the girls' performance was quite superior to that of the boys.

Table 3 shows the mean scores of only those children who were in the "choice" group. In both the third-grade and sixth-grade groups those who chose the unorganized stimulus tended to perform better than those who chose the organized stimulus. (However, only with the sixth grade group is the difference between means significant at the five per cent level of confidence.) There may be at least three reasons for this phenomenon: (1) Highly creative children may have been more prone to select the unorganized stimulus than their less creative peers. (2) The unorganized stimulus may have encouraged a slightly better performance than the organized stimulus. (There is some evidence for this in Table 2.) (3) The <u>combination</u> of choice and unorganized stimulus may have been more motivating than any one of the stimuli by itself. Notice in Table 3 that the sixth-grade mean related to the unorganized stimulus is considerably higher than any mean in Table 2.

Table 4 shows the frequency of stimulus preferences of the children in the third-grade choice group. The organized stimulus was obviously more popular than the unorganized stimulus for both girls and boys.

Table 5 shows the frequency of stimulus preferences of children in the sixth-grade choice group. The organized stimulus was the obvious favorite of the sixth graders. The difference between the sexes is not significant at the .05 level of confidence, although the slight tendency for boys to choose the unorganized stimulus more than the girls is consistent with the boys' superior performance in the "unorganized" group (see Table 2).

Tables 6 and 7 show the frequency of stimulus preferences of children in the choice group receiving high, average, and low scores on their creative compositions. The differences among the high, average, and low groups are not statistically significant.

Conclusions

Perhaps the most significant result of this study is the indication that by the time children have reached the sixth grade, boys and girls have

Table 4

Frequency of Stimulus Preferences of Children in Third Grade Choice Group

	Organized		Unorganized	
	f	%	f	%
Boys	44	88	6	12
Girls	41	85	7	15
Total	85	87	13	13

Table 5

Frequency of Stimulus Preferences of Children in Sixth Grade Choice Group

	Organized		Unorganized	
	f	%	f	%
Boys	44	73	16	27
Girls	35	81	8	19
Total	79	77	24	23

Table 6

Frequency of Stimulus Preferences of Children in Third Grade Choice Group Receiving High, Average, and Low Scores on Creative Compositions

	Organized		Unorganized	
	f	%	f	%
High	19	79	5	21
Average	33	89	4	11
Low	33	89	4	11

Table 7

Frequency of Stimulus Preferences of Children in Sixth Grade Choice Group Receiving High, Average, and Low Scores on Creative Compositions

	Organized		Unorganized	
	f	%	f	%
High	27	71	11	29
Average	29	73	11	27
Low	23	92	2	8

developed different motivation patterns with respect to creative writing. Boys appear to be more challenged when asked to write about an unorganized stimulus than they are when asked to write about an organized stimulus. Girls, on the other hand, appear to be more challenged when asked to write about an organized stimulus than they are when asked to write about an unorganized stimulus.

Perhaps the safest conclusion to draw from this study is that teachers should consider the broad range of motivation patterns which exist in a single classroom and provide children with a choice between an organized and unorganized stimulus. A more experimental approach would be that of "mixing" the stimuli--using an organized stimulus on one occasion, an unorganized stimulus on another occasion, and a choice on another. At any rate, it is doubtful that using an organized stimulus alone or a choice among organized stimuli will allow adequately for individual variations in motivation pattern. A more effective approach would probably be to shift between organized and unorganized stimuli or to provide a choice between organized and unorganized stimuli.

References

1. Barron, Frank "Originality in Relation to Personality and Intellect" Journal of Personality 25: 730-742, 1957.

2. Berry, Eloise "Films and Creative Expression," Elementary English 35: 383-386, October, 1958.

3. Carlson, Ruth K. "Recent Research in Originality," Elementary English 40: 583-589, October, 1963.

4. Drews, Elizabeth M. "The Four Faces of Able Adloscents" Saturday Review, January 19, 1963.

5. Edmund, Neal R. "Writing in the Intermediate Grades," Elementary English 36: 491-501, November, 1959.

6. Getzels, J.W. and Jackson, P.W. "The Study of Giftedness; A Multi-Demensional Approach." The Gifted Student. Cooperative Research Monograph No. 2 U.S. Dept. of Health, Education, and Welfare, Washington, D.C. U.S. Government Printing Office, 1960.

7. Guilford, J.P., Wilson, R.C., and Christensen, P.R. "A Factor-Analytic Study of Creative Thinking: II. Administration of Tests and Analysis of Results." Reports from the Psychological Laboratory: No. 8. University of Southern California, July, 1952.

8. MacKinnon, Donald W. "What Makes a Person Creative." Saturday Review, February 10, 1962.

9. Sofell, C. "A Comparison of the Use of Imposed with Self-Chosen Subjects ... "Masters Thesis, Pittsburgh, University of Pittsburgh, 1929 (Summarized by Edmund in Elementary English 36: 495, November, 1959).

10. Stein, Morris I., and Meer, Bernard "Perceptual Organization in a Study of Creativity." Journal of Psychology 37: 39-43, 1954.

11. Stanley, Julian C. and Beeman, Ellen Y. "Restricted Generalization, Bias, and Loss of Power That May Result from Matching Groups," Psychological Newsletter, N.Y.U., 9:88-102, No. 3., Jan.-Feb., 1958.

12. Torrance, E. Paul. "Creative Thinking Through the Language Arts" Educational Leadership 18: 13-18, October, 1960.

13. Wilson, Robert C., Guilford, J.P., Christensen, P.R. "The Measurement of Individual Differences in Originality." Psychological Bulletin 50: 362-370, 1953.

14. Witty, Paul and Martin, William "An Analysis of Children's Composition Written in Response to A Film, Elementary English 34: 158-163, March, 1957.

15. Wyatt, Nita M. "A Study of the Relationship of Extensive Reading to Certain Writing Skills of a Selected Group of Sixth Grade Children" The University of Kansas Bulletin of Education 16: 13-18, November 1961.

16. Yamamoto, Kaoru and Torrance, E. Paul. Scoring Manual for Evaluation Imaginative Stories, Bureau of Educational Research, College of Education, University of Minnesota, January, 1961.